



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

h. n)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/541,426	04/03/2000	Kyeong Jin Kim	8733.230.00	4200
30827	7590	11/28/2007		
MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006			EXAMINER NGUYEN, DUNG T	
			ART UNIT 2871	PAPER NUMBER
			MAIL DATE 11/28/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

09/541,426

Applicant(s)

KIM ET AL.

Examiner

Dung Nguyen

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 3, 8-18, 20-29, 31, 35-46 and 48-58 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 8-18, 20-29, 31, 35-46 and 48-58 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/12/2007 has been entered.
2. Applicants' amendment dated 08/15/2007 has been received and entered. By the amendment, claims 1, 3, 8-18, 20-29, 31, 35-46 and 48-58 are now pending in the application.
3. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejections as follow.

### *Claim Rejections - 35 USC § 103*

- 4 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3, 8-18, 20-22, 24, 26, 29, 31, 35-46, 48-50, 52, 54 and 57-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US 5,608,556, in view of Takeda et al., US 5,574,582, Nakamura, US 5,798,056 and Applicant's submitted prior art, Koma et al., figure 5, "No-Rub Multi-Domain TFT Using Surrounding-Electrode Method", SID, 1995, pages 869-872.

Art Unit: 2871

Regarding the above claims, Koma discloses a multi-domain LCD device (figures 3, 8 and 10) comprising:

- a first substrates (10) and a second substrate (30) facing each other;

- a homeotropic liquid crystal layer (41), wherein an alignment direction of the liquid crystal layer in one region is different from that of the other regions during an operation of the pixel (see figure 10);

- a plurality of gate bus lines (12), a plurality of data bus lines (20), a plurality of TFTs (15) including a gate insulator (13), a passivation layer (21), and a pixel electrode (17);

- an electric field inducing window (control window 33b) in the pixel electrode, so as the pixel electrode is divided into at least two regions (e.g. four regions/domains in figure 10);

- a polyimide alignment layer (23) having a pretilt angle substantially  $1^{\circ}$  (respect to normal line);

Koma, however, neither disclose a storage electrode connected to the pixel electrode and overlapped with the gate line to form a storage capacitor. Takeda et al. do disclose a storage capacitor (12) can be formed with a capacitor electrode that overlapped with a gate line (5Xi-1) and connected to a pixel electrode (3C(i,j)) via a contact hole (see figure 2a). Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to employ a storage capacitor as shown by Takeda et al. in the Koma's display device, sine it is a common practice in the art to improve a display aperture and to improve a signal voltage holding (see col. 1, ln 35).

Koma nor disclose the "L-shaped" TFT in the LCD device, it would have been obvious to one skill in the art to form a TFT having a "L-shaped" as evidence from the Applicant's

Art Unit: 2871

submitted prior art, Koma et al. figure 5 since it is well known in the art in order to increase an aperture ratio of an LCD device.

In addition, although Koma does not disclose a PSCN or CelCN photo alignment, Koma does disclose that a photo alignment layer (e.g., polyimide) can be used (col. 6, ln 10).

Nakakuma also discloses a polysiloxane compound is a well-know based compound for the photo alignment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the polysiloxane compound (e.g., PSCN) based photo alignment film for a photo-aligning treatment (such as exposing the alignment film to UV light) in order to avoid electrostatic discharge caused by rubbing process. Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use an alignment material selected from the group of polyimide or PSCN and CelCn based compound, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

*In re Leshin*, 125 USPQ 416.

It should be noted that, regarding claims 8-10 and 36-38, the limitation of the gate insulating and/or the passivation layer and/or the pixel electrode are/is patterned recites a one-step process which does not further limit the structure of the claimed LCD device. Therefore, the process limitation does not have patentable weight.

6. Claims 27-28 and 55-56 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US 5,608,556, in view of Takeda et al., US 5,574,582, Nakamura, US 5,798,056 and Applicant's submitted prior art, Koma et al., figure 5, "No-Rub Multi-Domain TFT Using

Art Unit: 2871

Surrounding-Electrode Method”, SID, 1995, pages 869-8726, further in view of Sugiyama et al., US Patent 5,757,455.

Regarding the above claims, the modification to Koma does not disclose a negative uniaxial film or a negative biaxial film disposed on at least one substrate. Sugiyama et al. disclose a compensation film (e.g., a negative uniaxial film 49) can be formed over at least one substrate of an LCD panel (41) (see figure 10). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to form a negative uniaxial film on at least one substrate of an LCD device because it is a common practice in the art to improve contrast and/or reduce inversion, often in the same viewing areas in an LCD device (see col. 11, lines 30-41).

7. Claims 23 and 25 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US 5,608,556, in view of Takeda et al., US 5,574,582, Nakamura, US 5,798,056 and Applicant's submitted prior art, Koma et al., figure 5, “No-Rub Multi-Domain TFT Using Surrounding-Electrode Method”, SID, 1995, pages 869-872, further in view of Bos et al., US Patent No. 6,141,074.

Regarding the above claims, the modification to Koma discloses the claimed invention as described above except for the liquid crystal layer which has a positive or negative dielectric anisotropy and chiral dopants. Bos et al. do disclose a multi-domain LCD which can be formed with a positive or negative dielectric anisotropy liquid crystal layer (see Summary of the Invention). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to form a liquid crystal layer having a positive dielectric anisotropy or negative dielectric anisotropy because the use of one conventional material over another merely

Art Unit: 2871

depends on the desire of the manufacturer (i.e., homogeneous or homeotropic alignment) and/or the availability and practicality of the material for the chosen manufacturing process (see Summary of the Invention).

8. Claims 51 and 53 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US 5,608,556, in view of Takeda et al., US 5,574,582, Nakamura, US 5,798,056 and Applicant's submitted prior art, Koma et al., figure 5, "No-Rub Multi-Domain TFT Using Surrounding-Electrode Method", SID, 1995, pages 869-872, further in view of Van De Witte, US Patent No. 5,936,692.

Regarding the above claims, Koma discloses the claimed invention as described above except for the liquid crystal layer including chiral dopants. However, Van De Witte does disclose that an LCD can be included a chiral dopant (col. 2, ln. 21). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to form a chiral dopant in an LCD device as shown by Van de Witte since it is a common practice in the art to obtain a uniform twist sense (col. 2, ln. 24).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung Nguyen whose telephone number is 571-272-2297. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2871

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DN  
11/16/2007

/Dung T. Nguyen/  
**Dung Nguyen**  
**Primary Examiner**  
**Art Unit 2871**